

Application No. 10/734,630
Amendment dated May 19, 2006
Reply to Office action dated April 5, 2006

71268 US06

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (canceled)

Claim 2 (previously presented): The anthraquinone compound according to Claim 54 wherein the ethylenically-unsaturated, photosensitive copolymerizable groups represented by Q are selected from the following organic radicals:

Ia $-\text{COC}(\text{R}_{11})=\text{CH}-\text{R}_{12}$

IIa $-\text{CONH-COC}(\text{R}_{11})=\text{CH}-\text{R}_{12}$

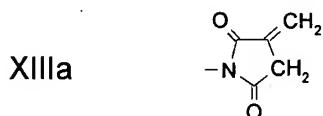
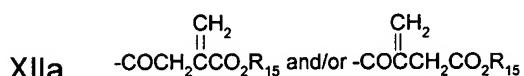
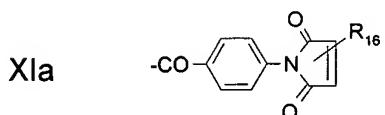
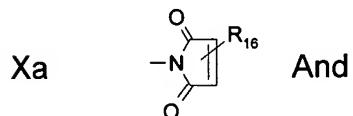
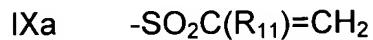
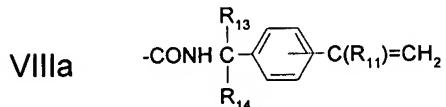
IIIa $-\text{CONH-C}_1 - \text{C}_6\text{-alkylene OCOC}(\text{R}_{11}) - \text{CH=CH-R}_{12}$

IVa $\begin{array}{c} \text{R}_{13} \\ | \\ -\text{CO}-\text{C}-\text{NHCOC}(\text{R}_{11})=\text{CH}-\text{R}_{12} \\ | \\ \text{R}_{14} \end{array}$

Va $-\text{COCH=CH-CO}_2\text{R}_{15}$

VIa $-\text{CO}-\text{C}_6\text{-phenyl-C(R}_{11}\text{)=CH}_2$

VIIa $-\text{CH}_2-\text{C}_6\text{-phenyl-C(R}_{11}\text{)=CH}_2$



wherein:

R₁₁ is selected from hydrogen and C₁-C₆-alkyl;

R₁₂ is selected from hydrogen; C₁-C₆-alkyl; phenyl and phenyl substituted with one or more groups selected from C₁-C₆-alkyl, C₁-C₆-alkoxy, -N(C₁-C₆-alkyl), nitro, cyano, C₁-C₆-alkoxycarbonyl, C₁-C₆-alkanoyloxy and halogen; 1- and 2-naphthyl which may be substituted with C₁-C₆-alkyl or C₁-C₆-alkoxy; 2- and 3-thienyl which may be substituted with C₁-C₆-alkyl or halogen; 2- or 3-furyl which may be substituted with C₁-C₆-alkyl;

R₁₃ and R₁₄ are selected from hydrogen, C₁-C₆-alkyl, substituted C₁-C₆-alkyl, aryl or may be combined to represent a -[CH₂]₃₋₅- radical;

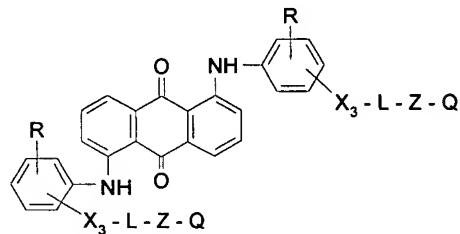
R₁₅ is selected from hydrogen, C₁-C₆-alkyl, substituted C₁-C₆-alkyl, C₃-C₈-alkenyl, C₃-C₈-cycloalkyl and aryl;

R₁₆ is selected from hydrogen, C₁ - C₆-alkyl and aryl.

Claims 3-14 (canceled)

Claim 15 (previously presented): The anthraquinone compound according to Claim 2 having the formula:

XVI.

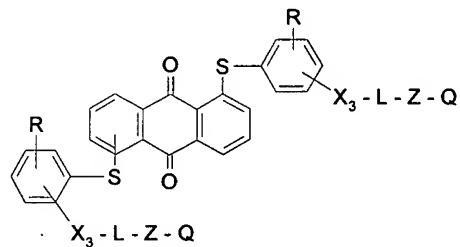


wherein Z is -O-.

Claim 16 (canceled)

Claim 17 (previously presented): The anthraquinone compound according to Claim 2 having the formula:

XIX.



wherein Z is -O-.

Claim 18 (canceled)

Claim 19 (previously presented): The anthraquinone compound according to Claim 2 wherein Q is organic radical Ia.

Claim 20 (previously presented): The anthraquinone compound according to Claim 2 wherein Q is organic radical Ia wherein R₁₁ is hydrogen or methyl and R₁₂ is hydrogen.

Claim 21 (previously presented): The anthraquinone compound according to Claim 2 wherein Q is organic radical VIIa.

Claim 22 (previously presented): The anthraquinone compound according to Claim 2 wherein Q is organic radical VIIa wherein R₁₁ is hydrogen.

Claim 23 (previously presented): The anthraquinone compound according to Claim 2 wherein Q is organic radical VIIia.

Claim 24 (previously presented): The anthraquinone compound according to Claim 2 wherein Q is organic radical VIIia wherein R₁₁ is hydrogen or methyl and R₁₃ and R₁₄ are methyl.

Claim 25-31 (canceled)

Claim 32 (previously presented): The anthraquinone compound according to Claim 15 wherein X₃ is -CO₂-, L is -CH₂CH₂-, and R is hydrogen or bromine.

Claim 33 (previously presented): The anthraquinone compound according to Claim 15 wherein X₃ is -CO₂-, L is propylene, 1,4-cyclohexylenedimethylene or 2,2-dimethyltrimethylene, R is hydrogen, Z is -O-, and Q is an organic radical having the structure -COC(R₁₁)=CH₂ wherein R₁₁ is hydrogen, methyl or ethyl.

Claim 34 (previously presented): The anthraquinone compound according to Claim 15 wherein X₃ is -CO₂-, L is propylene, 1,4-cyclohexylenedimethylene or 2,2-dimethyltrimethylene, R is hydrogen, Z is -O-, and Q is an organic radical having structure VIIia wherein R₁₁, R₁₃ and R₁₄ each is methyl.

Claim 35 (canceled)

Claim 36 (previously presented): The anthraquinone compound according to Claim 17 wherein X₃ is -CO₂-, L is -CH₂CH₂-, and R is hydrogen.

Claim 37 (previously presented): The anthraquinone compound according to Claim 17 wherein X₃ is -CO₂-, L is propylene, 1,4-cyclohexylenedimethylene or 2,2-dimethyltrimethylene, R is hydrogen, Z is -O-, and Q is an organic radical having the structure -COC(R₁₁)=CH₂ wherein R₁₁ is hydrogen, methyl or ethyl.

Claim 38 (previously presented): The anthraquinone compound according to Claim 17 wherein X₃ is -CO₂-, L is propylene, 1,4-cyclohexylenedimethylene or 2,2-dimethyltrimethylene, R is hydrogen, Z is -O-, and Q is an organic radical having structure VIIa wherein R₁₁, R₁₃ and R₁₄ each is methyl.

Claim 39-46 (canceled)

Claim 47 (previously presented): A coating composition comprising (i) one or more polymerizable vinyl compounds, (ii) one or more of the dye compounds of Claim 54, and (iii) a photoinitiator.

Claim 48 (previously presented): A coating composition comprising (i) one or more polymerizable vinyl compounds, (ii) one or more of the dye compounds of Claim 2 present in a concentration of about 0.05 to 15 weight percent based on the weight of component (i), and (iii) a photoinitiator present in a concentration of about 1 to 15 weight percent based on the weight of the polymerizable vinyl compound(s) present in the coating composition.

Claim 49 (previously presented): The coating composition according to Claim 48 wherein the polymerizable vinyl compounds comprise a solution of a polymeric, polymerizable vinyl compound selected from acrylated and methacrylated polyesters,

acrylated and methacrylated polyethers, acrylated and methacrylated epoxy polymers , acrylated or methacrylated urethanes, and mixtures thereof, in a diluent selected from monomeric acrylate and methacrylate esters.

Claim 50 (previously presented): A polymeric coating composition comprising a polymer of one or more acrylic acid esters, one or more methacrylic acid esters or other copolymerizable vinyl compounds, having copolymerized therein one or more of the dye compounds defined in Claim 54.

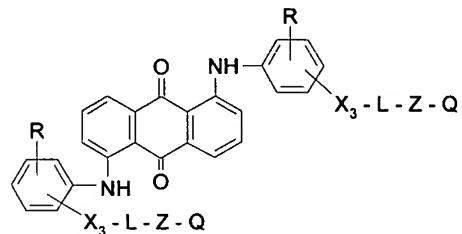
Claim 51 (previously presented) A polymeric coating composition comprising a coating of an acrylic polymer of one or more acrylic acid esters, one or more methacrylic acid esters or a mixture thereof having copolymerized therein one or more of the dye compounds defined in Claim 2.

Claim 52 (previously presented): A polymeric coating composition comprising a coating of an unsaturated polyester containing one or more maleate/fumarate residues; one or more monomers which contain one or more vinyl ether groups, one or more vinyl ester groups, or a combination thereof, and, optionally, one or more acrylic or methacrylic acid esters; or a mixture thereof having copolymerized therein one or more of the dye compounds defined in Claim 2.

Claim 53 (previously presented): The polymeric coating according to Claim 51 containing from about 0.05 to 15.0 weight percent of the residue of one or more of the dye compounds based on the weight of the coating.

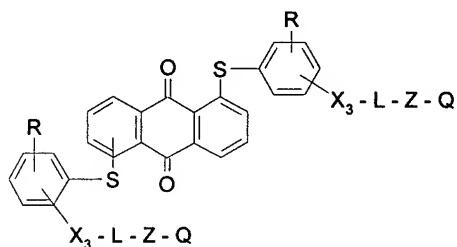
Claim 54 (previously presented) An anthraquinone dye compound having the formula:

XVI.



or

XIX.



wherein:

R is selected from hydrogen or 1-3 groups selected from C₁ - C₆-alkyl, C₁ - C₆-alkoxy and halogen;

X₃ is selected from -CO₂- , -SO₂N(Y)-, wherein Y is selected from the group consisting of hydrogen, C₁-C₆-alkyl, substituted C₁-C₆-alkyl, C₃-C₈-cycloalkyl, C₃-C₈-alkenyl, aryl and -L-Z- Q;

L is a divalent linking group selected from C₁-C₈-alkylene, C₁-C₆-alkylene-arylene, arylene, C₁-C₆-alkylene-arylene -C₁-C₆-alkylene, C₃-C₈-cycloalkylene, C₁-C₆-alkylene -C₃-C₈-cycloalkylene -C₁-C₆-alkylene, C₁-C₆-alkylene - Z₁-arylene -Z₁-C₁-C₆-alkylene and C₂-C₆-alkylene-[Z₁-C₂-C₆-alkylene-]_n- wherein Z₁ is selected from -O-, -S- and -SO₂- and n is 1-3; and

Z is a divalent group selected from -O-, -S-, -NH-, -N(C₁-C₆-alkyl)-, -N(C₃-C₈ alkenyl)-, -N(C₃-C₈ cycloalkyl)-, -N(aryl)-, -N(SO₂C₁-C₆-alkyl) and -N(SO₂ aryl)-, provided that when Q is a photopolymerizable optionally substituted maleimide radical, Z represents a covalent bond; Q is an ethylenically-unsaturated, photosensitive polymerizable group.